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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FIORILLA, CHRISTOPHER A

ART UNIT

PAPER NUMBER

1731

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/941,676

Applicant(s)

ODAKA ET AL.

Examiner

Christopher A. Fiorilla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Claims 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, the phrase "carbon contained in the molded body" has no antecedent basis.

The source of the carbon is unclear.

In claim 14, the last portion of the claim (i.e. "effecting post-treatment...") is written such that the heating schedule is unclear.

Claim 18 is indefinite in that it refers to an organic substance impregnated in the molded body but there is no positive impregnating step recited in the claims.

Claim 18 is indefinite in that the basis of the percentage is undefined (i.e. are the percentages based on weight?).

2. The disclosure is objected to because of the following informalities:

On page 7, line 6, the sentence "A preferable example of solid carbon sources is silicon oxide" appears to be inaccurate. Silicon oxide is not a carbon source.

On page 17, line 3, "molted" should be changed to \*\* molten \*\*.

Appropriate correction is required.

3. Claims 12-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process wherein the molded body is impregnated with an organic substance consisting of at least one kind of carbon source (page 15, lines 7-10), does not reasonably provide enablement for the process as generically claimed. The specification does

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not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 12 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kojima et al. (5,589,116).

Kojima et al. teaches the claimed process of producing a silicon carbide sintered body.

The process disclosed by Kojima et al. includes the steps of:

preparing a slurry by dispersing silicon carbide powder in a solvent;  
forming a molded body by pouring the slurry into a mold;  
effecting calcination of the slurry in a vacuum; and  
impregnating the pores in the calcined body with molten silicon.

See col. 11, lines 50-67. Kojima et al. also discloses that the SiC powder has an average particle size of 5  $\mu\text{m}$  (col. 11, line 44); calcinations may be carried out at 500-2000°C C (col. 9, line 33); a nitrogen source is added during the slurry formation (ammonium) and the silicon carbide powder impurity amounts (Table 1).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 12,13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kriegsmann et al. (6,228,283) in view of Ohno et al. (4,284,431).

Kriegsmann et al. teaches the basic claimed process of manufacturing a silicon carbide body. The process disclosed by Kriegsmann et al. includes the steps of:

- preparing a slurry by dispersing silicon carbide powder in a solvent;
- forming a molded body by pouring the slurry into a mold;
- effecting calcination of the slurry in a vacuum; and
- impregnating the pores in the calcined body with molten silicon.

See e.g. col. 5. Kriegsmann et al. also discloses that the SiC powder has an average particle size between 0.1 and 10 $\mu$ m (col. 5, line 30); a nitrogen source is added during the slurry formation (ammonium) and calcination (sintering) may be carried out at 1700°C (col. 5, line 39).

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Kriegsmann et al. discloses impregnating the body with phenol resin (col. 5, line 47) but does not disclose that the polymer has a carbon content of 10-30%. Ohno et al. discloses phenol resins with carbon contents within this range. See e.g. Figure 2 and elsewhere. It would have been obvious to one skilled in the art at the time of the invention to use this type of resin in the process of Kriegsmann et al. in view of the generic disclosure therein.

9. Claims 12-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al. (5,589,116) in view of Takahashi et al. (6,217,969).

Kojima et al. teaches the claimed process of producing a silicon carbide sintered body.

The process disclosed by Kojima et al. includes the steps of:

preparing a slurry by dispersing silicon carbide powder in a solvent;  
forming a molded body by pouring the slurry into a mold;  
effecting calcination of the slurry in a vacuum; and  
impregnating the pores in the calcined body with molten silicon.

See col. 11, lines 50-67. Kojima et al. also discloses that the SiC powder has an average particle size of 5  $\mu\text{m}$  (col. 11, line 44); calcinations may be carried out at 500-2000°C C (col. 9, line 33); a nitrogen source is added during the slurry formation (ammonium) and the silicon carbide powder impurity amounts (Table 1).

Kojima et al. does not disclose the method of forming silicon carbide powder as recited in claims 14 and 15. Takahashi et al. discloses this method of forming silicon carbide powder. See cols. 5-6. It would have been obvious to one having ordinary skill in the art at the time of the invention to use this method to prepare the silicon carbide for use in the process of Kojima et al. in view of the requirement therein that the SiC be of high purity.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is 703-308-0674. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



**Christopher A. Fiorilla**  
**Primary Examiner**  
**Art Unit 1731**